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Beaucarnea updated

Colin C Walker

Beaucarnea is a genus of pachycaul succulents, of which *B. recurvata* is the most commonly cultivated species. The genus has recently been expanded to include the closely related genus *Calibanus*, of which *B. hookeri* (formerly *C. hookeri*) is also a familiar species. Photography by the author except where otherwise indicated.

Introduction

Beaucarnea was first described as a genus by Lemaire (1861), who included three species, all still recognised today: *B. recurvata*, *B. stricta* and *B. gracilis*. It was named for the Belgian amateur, Jean-Baptiste Beaucarne, a notary from Eename near Audenarde, who first collected flowers of *B. recurvata*. The plants are pachycaul succulents (Rowley, 1987) with greatly swollen stem bases, some with nearly globular caudices when immature. They are only basally swollen when mature with erect, moderate branching above. The

plants have responded well to cultivation, such that *B. recurvata* is now commonly available as a garden centre plant. In countries with Mediterranean-type climates beaucarneas thrive outdoors and in America they are known as ponytail palms, although they are not at all closely related to the true palms.

The genus has expanded such that at the last survey of succulent plants, eight species were recognised (Walker, 2001a, b). In the most recent investigation of *Beaucarnea* the genus has been increased further to include 12 species (Rojas-Piña et al, 2014). The most

significant aspect of this expansion of *Beaucarnea*, is that it now includes the previously separate genus *Calibanus*. The two species of *Calibanus* have globular caudices with greatly reduced branches, whilst the fruits are fleshy and globular as opposed to the 3-winged capsules of *Beaucarnea*. Now the study of Rojas-Piña et al has shown that, on the basis of molecular evidence, *Calibanus* cannot be separated from *Beaucarnea*, and they have transferred the two species, *Calibanus hookeri* and *C. glassiana* to *Beaucarnea*. Two further new species have been added since 2001: *B. compacta* and *B. sanctomariana*.



Fig. 1 *Beaucarnea inermis*. This species is now considered to be a synonym of *B. recurvata*. Growing in a 13cm diameter pot. HBG 76314, raised from seed collected in Vera Cruz, Mexico, 1993



Fig. 2 *B. recurvata* in a 30cm diameter pot

Ten of the 12 species are endemic to Mexico, with two other species occurring further south in Central America: *B. guatemalensis* in Guatemala and *B. plibilis* in Guatemala and Belize. There is also a possible new species recorded from Nicaragua (Lott & Garcia-Mendoza, 1994), yet to be described. At least two further putative new taxa are included in the study of Rojas-Piña et al (2014), so the breadth of diversity in this genus is yet to be fully documented.

The family placement of *Beaucarnea* has also changed in recent years. It was previously considered to be a member of the small family, the Nolinaceae, consisting of four genera: *Beaucarnea*, *Calibanus*, *Dasyllirion* and *Nolina* (Walker, 2001a, b). This family is currently no longer recognised, and forms part of either a broadly circumscribed Asparagaceae (APG, 2009), or a more narrowly defined Ruscaceae (Nyffeler & Eggli, 2010); the latter position will be adopted in the forthcoming second edition of the *Illustrated Handbook of Succulent Plants*.

Beaucarnea recurvata

Beaucarnea recurvata Lemaire is the type species of the genus and exemplifies the appearance of these plants. As a juvenile it has a stem with an almost globular caudex with a single erect branch (Figs. 1 & 2). At maturity the stem becomes greatly swollen at the base (Fig. 3), up to 3m in diameter with several erect branches, forming a tree up to 9m tall. The bark of older plants is rough, woody and fissured. The leaves are long and thin (90–180cm long and 1.5–2.0cm wide), slightly tapering, recurved (hence the species name), thin, flat or slightly grooved, green and smooth. The inflorescence is up to 1m long, well branched (Fig. 4), bearing numerous very small flowers about 4mm across. An individual plant usually produces unisexual flowers that are either only male or female and hence is described as being dioecious.

B. recurvata occurs in the Mexican States of San Luis Potosí, Tamaulipas, Vera Cruz and Oaxaca. According to the assessment of Contreras et al (2008), most populations of this species are endangered because of habitat destruction due to urban expansion and increase in agriculture. In the Isthmus of Tehuantepec, Oaxaca, *B. recurvata* is restricted to the Pacific slopes, whilst its close relative, *B. sanctomariana*, of which more later, occurs



Fig. 3 *B. recurvata* growing in the Monte Palace Garden, Funchal, Madeira

on slopes facing the Gulf of Mexico (Hernández-Sandoval, 2001).

Fortunately *B. recurvata* is easily raised from seed and it is now a common plant in cultivation. It is readily available through the commercial nursery trade and is often found in garden centres and as an architectural plant in office spaces. Its swollen stem and shaggy leaves make it an unusual and attractive pot plant, and it retains its immature form of an almost globular caudex for many years before the stem elongates significantly (Fig. 1). It can flower after about 15 years and at around 1m tall.

In Walker (2001a) *Beaucarnea inermis* (S. Watson) Rose was considered to be a distinct species, but this was reduced to synonymy by Rojas-Piña et al (2014).

A variegated cultivar of *B. recurvata* is apparently rare (Fig. 5). This is named here *Beaucarnea recurvata* 'Stripy Ponytail'. This plant has the typical recurved shaggy arrangement of leaves characterising this species, but it is distinguished by the pale creamy yellow marginal stripes to the leaves. The development of the variegation is not clearly shown in Fig. 5, but the new leaves start as pale yellow-green and the dark green central stripe develops as the leaf matures. This is a very attractive and desirable new cultivar. The origin of the variegated plant is currently unknown and it was not recorded by Rowley (2006) in his book on cristate and variegated succulents. This plant has a basally-swollen stem, but lacks the characteristic globose shape of young plants because it has been propagated as a cutting and not raised from seed.

Beaucarnea hookeri

The name of this species has a complex history. It appears to have been discovered around 1845 and was described by William Hooker, the first director of The Royal Botanic Gardens, Kew. However, Hooker (1859) misidentified the plant as *Dasyliirium* [= *Dasyliirion*] *hartwegianum* Hooker. He said, "...we received from... Mexico some remarkable plants in the form of tubers, a foot and half long, and nearly as high aboveground, the surface of which is formed by a number of wrinkled tubercles, slightly elevated, and somewhat circinnately wrinkled; from a few of which appeared tufts of rigid, subulate leaves, one to two feet



Fig. 4 *B. recurvata* growing and flowering in the Monte Palace Garden, Funchal, Madeira



Fig. 5 *B. recurvata* 'Stripy Ponytail', 58cm tall growing in a 25cm diameter pot (Photo: Tina Wardhaugh)

long... The general aspect of the tubers reminded one of the well-known 'Elephant's-foot' of South Africa" (= *Dioscorea elephantipes*, an unrelated plant).

Lemaire later corrected the name to *Dasyllirion hookeri*, whilst Rose (1906) published the genus *Calibanus* but used the incorrect species combination *Calibanus caespitosus* (Scheidweiler) Rose. This new genus was named after Caliban, the ugly monster in Shakespeare's play *The Tempest*. Trelease (1911) published the correct combination as *Calibanus hookeri* (Lemaire) Trelease, the name with which this species is currently most familiar in cultivation.

Recently the molecular study of Rojas-Piña et al (2014) has shown that *Calibanus* is not separable from *Beaucarnea*, and so *C. hookeri* has reverted to *Beaucarnea hookeri* (Lemaire) Baker, a name dating back to 1872. It is somewhat unfortunate that so distinctive a name as *Calibanus* is now relegated to synonymy.

This species was rediscovered by Charlie Glass and Bob Foster in 1968 in San Luis Potosí, who said that, "Oddly enough, though *Calibanus* is fairly common on the hilltops of central Mexico, perhaps because of its grass-like camouflage it has been overlooked by most succulent collectors, and was almost unknown in cultivation until its recent reintroduction" (Glass & Foster, 1970). This species has a restricted distribution in the Mexican States of Hidalgo and San Luis Potosí, but it is now well-known in cultivation and most of the material originates from the ISI 688 distribution, based on material collected by Glass & Foster (1971). It has

proved to be almost hardy, is readily propagated from seed and is recorded flowering at 9 years old from seed (Brand, 2009).

The plant has a globose caudex, slightly flattened, up to 50cm diameter (Fig. 6), with corky, fissured bark that later becomes woody. It produces very short branches in the form of tufts of leaves. The leaves are thin, grass-like, up to 30cm long, 2–3mm wide, somewhat concave and keeled, narrowly linear with rough margins. The flower spike terminates the growth of the branch and is up to 25cm tall with branches 6–8cm long. Each flower is unisexual and small, a mere 3–4mm across.

Glass & Foster (1970) said that this species, "known locally as 'Sacamecate' is used for thatching roofs as well as for scouring dishes, as it contains a soap-like substance in the leaves. The leaves of many plants have been harvested."

Beaucarnea gracilis

Beaucarnea gracilis Lemaire comes from the Mexican States of Puebla and Oaxaca, where it is endemic to the Tehuacán Valley (Hernández & Zamudio, 2003). It has a stem that is basally enormously swollen and circular in cross-section, with modest branching, growing up to 12m tall (Fig. 7). The specific name *gracilis* means thin, presumably referring to the leaves which, as in *B. recurvata*, are long and thin (30–60cm long and 4–7mm wide), but in this species they are erect, very glaucous and with margins minutely but sharply roughened.



Fig. 6 *B. hookeri* growing in a 26cm diameter pot (Photo: Tina Wardhaugh)

Beaucarnea stricta* and *B. purpusii

Beaucarnea stricta Lemaire has a limited distribution in the Mexican State of Oaxaca (Garcia-Mendoza & Galvan, 1995). This is another tree, growing up to 10m, with a greatly swollen stem circular in cross-section at the base, and modestly branched and clothed with dead leaves (Fig. 8). The specific name *stricta* refers to the erect, straight, long thin leaves (55–80cm long and 8–15mm wide).

Until recently this species included *B. purpusii* Rose as a synonym. However, in the cladogram (evolutionary tree) of Rojas-Piña



Fig. 7 *B. gracilis* growing at the Huntington Botanical Gardens, San Marino, California

et al (2014), *B. stricta* was shown to occupy a distinct clade (branch) and that *B. purpusii* could be recognised as a distinct species. In addition to molecular evidence, conspicuous differences in the inflorescences were observed between these two species, but further work is required to properly characterise them.

Other species

Seven other species are recognised by Rojas-Piña et al (2014), most of which are rarely encountered in cultivation and some are almost certainly not yet cultivated. Of these, four species were recognised in Walker (2001a), namely *B. goldmanii* Rose, *B. guatemalensis* Rose, *B. hiriartiae* L.Hern and *B. plibilis* (Baker) Rose.

B. goldmanii from the Mexican State of Chiapas resembles *B. guatemalensis* but the leaves are larger and it remains poorly known.

B. guatemalensis forms trees up to 12m tall and is apparently endemic to Guatemala.

B. hiriartiae comes from the Mexican State of Guerrero. Hernández-Sandoval (2001) identified a unique growth form in this species, with its branches

growing only to one side of the stem, enabling it to be readily distinguished in the field from *B. recurvata* and *B. sanctomariana*.

B. plibilis is one of just two species that is not a Mexican endemic, since it occurs in the southern States of Yucatán and Quintana Róo, but also south in Guatemala and Belize and possibly elsewhere. It resembles *B. guatemalensis* but has rough instead of smooth leaf surfaces.

Three new species have been described since Walker (2001a): *B. compacta* L.Hern & Zamudio, *B. glassiana* (L.Hern & Zamudio) V.Rojas and *B. sanctomariana* L.Hern.

B. compacta comes from the Mexican State of Guanajuato (Hernández & Zamudio, 2003) and is closely related to *B. hookeri* and *B. glassiana* in the cladogram of Rojas-Piña et al (2014). It is similar to these former species of *Calibanus* in having a subglobose caudex with greatly reduced branches. It was, however, described as a species of *Beaucarnea* and not *Calibanus* on the basis of fruit differences.

B. glassiana also comes from the Mexican State of Guanajuato and was described as the second species of *Calibanus* (Hernández & Zamudio, 2003). Like

B. hookeri it has a subglobose caudex with greatly reduced branches, but it differs from the more familiar species in that it has fewer apical branches, the glaucous-green leaves are significantly longer (up to 1.2m); the inflorescences are also longer, more branched and the fruits are smaller.

B. sanctomariana has a very limited distributional range, being endemic to the Isthmus of Tehuantepec in the Mexican State of Oaxaca and hence is considered to be a micro-endemic endangered species (Hernández-Sandoval, 2001). It is similar to *B. recurvata* with its stem shape and recurved smooth leaves, but there are differences in its inflorescence, with shorter branches and smaller flowers.

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Fig. 8 *B. stricta* growing in Balboa Park, San Diego, California (Photo: Gary Irish)

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